Delay in the Establishment of Atomic Power Station at Narora

*223. SHRI VITHALRAO MADHAV RAO JADHAV:†

SHRI CHIMANBHAI MEHTA:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the establishment of 500 MW atomic power station at Narora is being delayed due to delay in the supply of turbine by the BHEL,

(b) if so, what action Government are going to take in the matter; and

(c) by when the project is likely to be completed?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND IN THE DEPARTMENT OF OCEAN DEVELOPMENT, ATOMIC ENERGY, ELECTRONICS AND SPACE (SHRI SHIVRAJ PATIL): (a) Narora Atomic Power Project consists of two units of 235 MW capacity each. There has been no delay in the supply of turbine by BHEL.

(b) The impact of delayed delivery of other equipments has been reduced by paralleling construction activities as far as possible.

(c) Unit—1 & 2 of the Project are expected to be completed during 1987-88 and 1988-89 respectively.

SHRI VITHALRAO MADHAVRAO JADHAV: Mr. Chairman, I would like to take the privilege of congratulating our Prime Minister and the scientists who are working in the field of atomic energy, for making a major breakthrough by installation of Dhurva Fast Breeder Reactor at Trombay and at Kalapakkam at Madras.

With regard to my question about Narora atomic power plant, it has been given in the answer that there is no delay. I am happy over it. At the same time, in part (b) it has been given that the impact of delayed delivery of other equipments has been reduced by paralleling construction activities as far as possible. I would like to ask whether it is not a fact that due to some faults in the turbines or other components of atomic power reactor, the reactor had to be closed down for some time. Is there any suprvisory organisation of technicians or scientists just to watch that the required components are manufactured properly in public sector or private sector industries? If so, what is that?

SHRI SHIVRAJ PATIL: Sir, in the first part of the question it was asked whether there was delay in the supply of turbines and the answer is, there is no delay in the supply of turbines. Of course, there has delay in supply steam generators and end-shields and other parts. That is why, in the second part of the reply it is said that delays are tried to be reduced by paralleling activities.

As far as Narora plant is concerned, it is yet to be commissioned. So, there is no question of it going out of order or activity. The question asked by the hon. Member probably applies to some other plant and not to this plant.

SHRI VITHALRAO MADHAVRAO JADHAV: My question is, when the cost of per KW of electric power in a nuclear power plant is from 37 paise to 43 paise and for thermal plant it is 53 to 71 paise, and when we have full indigenous capacity for nuclear power plant which is 10,000 MW by the end of the century and which will be 10 per cent of the total power generation, is it not possible to increase the power generation from 10 per cent to 20 per cent by the end of the century?

MR. CHAIRMAN: Not relevant and still I will allow it.

†The question was actually asked on the floor of the House by Shri Vithalrao Madhavrao Jadhav.

SHRI SHIVRAJ PATIL: At present, we do have the technology necessary for establishing the nuclear power plant in the country. What would be required, is industrial capabiiity to produce the equipment and other things necessary as well as the funds. If these two things become available, it is possible.

SHRI CHIMANBHAI MEHTA: What was the projected investment in the case of Narora project and what would be the final cost? Secondly, what is going to be the cost of power generation compared to the other atomic power plants and also compared to the cost of power generation in non-nuclear power plants?

SHRI SHIVRAJ PATIL: The original cost in 1974 was Rs. 210 crores. In 1983, the cost went up to Rs. 399 crores. As far as the cost of generation is concerned, the cost of power generated by using nuc'ear technology is different in different plants. A study shows that if the plant is at a distance of more than 800 kms. away from the coal mines, the cost is slightly less. Even if it is at the coal mine site, the cost will be comparable. But the cost, really speaking of electricity generated in different plants is different.

SHRI SURESH KALMADI: Sir, many environmentalists and scientists have questioned the wisdom of setting up an atomic power plant at Narora. Actually, Narora falls in the seismic zone and even the Vengulekar Committee had opposed the setting up of the plant at Narora. Sir, only a few days back, there was a nuclear accident in the Ukraine because of which a city nearby, Kiev, was affected very badly and the radiation went up to, as far as up to, Sweden. Narora is just 150 miles away from Delhi. The site is bad. Since this is in an earthquake-prone region, I would like to ask the hon. Minister whether he is hundred per cent sure that this is a safe site. If it is not a safe site, will the Government consider shifting this nuclear power plant out of Narora? (*Interruptions*) This is no laughing matter. This is a very serious matter. We have seen what happened in Bhopal. At that time also, some people laughed in a similar manner. Sir, I am also concerned about the delay. Narora plant was supposed to be ready in 1981. Now, the Government says, it is going to be ready in 1988 or 1989. If you are not going to shift the plant, I would like to know whether you are going to keep up to the time schedule.

SHRI SHIVRAJ PATIL: Sir, Narora falls in seismic zone III of India. All precautions which are necessary to be taken in such matters have already been taken. (*Interruptions*) The designs that are used for constructing the buildings are such that they will be able to withstand the earthquake which may or may not occur in that area. The foundations which are raised to sustain the equipment there are also such that... (*Interruptions*) they would be able to absorb the shocks. I would like to inform, through you, Sir, this august House and the hon. Member that Japan is more seismic and is more prone to earthquake. Yet, Japan is having 31 reactors and ten more reactors are being constructed there. The precautions taken there and the precaution taken here are enough to see that there are no accidents and there is no danger. If we were not sure that accidents would not take place, we would not have started constructing the plant over there.

As far as delay is concerned, we have developed nuclear technology in India on our own. The first plant was put up at Tarapur, the second at Kota and the third at Madras. This is the fourth plant. As a matter of fact, the Kota and the Madras plants have been put up with the help of indigenous technology. Now, we have modified the equipments, as far as Narora is concerned. End-shield, steam generator and calandria are the most important equipments. And some

modifications were suggested on the basis of experience in Kota as well is in Madras. So, there have been delays on account of the modifications that were suggested, on account of the delay in acquiring the land at Narora, on account of certain changes which were effected at the instance of the Government in supplying the water for the plant, but we are sure we will be able to commission the plant on the dates which are given by us now.

SHRI THANGABAALU: Mr. Chairman, Sir, I would like to know the type of fuel that is going to be used in Narora plant. Will it be uranium or plutonium or thorium? Secondly, we have ample quantity of thorium in our country. There is also necessary technology to convert thorium into enriched plutonium. Why should we not have a larger (big projects) programme for power generation by means of atomic energy?

SHRI SHIVRAJ PATIL: In Narora plant we will be using natural uranium. There are three stages through which our nuclear programme will pass. In the first stage we will be using natural uranium, in the second we will be using plutonium and in the third stage we will be using thorium. After we establish the fast breeder test reactor, beying that if we go, we will b going to thorium.

श्री सत्य प्रकाश मालवीय : मान्धवर, बुलन्दशहर उत्तर प्रदेश का एक जिला है । मैं यह जानना चाहता हूं कि क्या 1956 में बुलन्दशहर में कोई भूकम्प आया था और यह नरोरा बलन्दशहर से कितने किलोमीटर पर स्थित है ?

श्री शिवराज पाटिल : श्रीमन्, मैंने पहले ही कहा है कि नरोरा सिसमिक जोन थ्री में आता है । बुलन्दशहर में किस वक्त भूकम्प आया था यह मैं पूछताछ करके बता सकता हूं । यह कितने डिसटेंस पर है यह नक्शा देख कर पता लगाया जा सकता है । मेरा कहना यह है कि हमने इसका डिजाइन ऐसा बनाया हुआ है इसके अन्दर ऐसे प्रिकाशन्स लिये हैं कि भूकम्प से इसको कोई नुकसान नहीं पहुंचेगा ।

श्री वीरेन्द्र वर्मा : मंत्री महोदय ने बताया कि 1974 में इसके ऊपर कार्य प्रारम्भ किया गया था और इसको 1980-81 में पूरा हो जाना चाहिए था । माननीय मंत्री जी ने यह भी बताया कि कुछ नई टैक्नालोजी की वजह से इसमें देरी हुई है जिसको इन्होंने इंपोर्ट करना था । शायद अपने उत्तर में मंत्री जी ने यह भी बताया कि कितना इसका प्रिलिमिनरी एस्टीमेट था और अब कितना हो जायेगा तो माननीय मंत्री जी यह बतायेंगे कि जो टेक्नालोजी इम्पोर्ट करनी थी जापान से या किसी अन्य देश से वह पूर्ण टेक्नोलोजी या इन्स्ट्रूमेंट आ गये हैं या नहीं ? यह अभी फर्स्ट फेज में हैं और यह आपने बताया कि यह पूर्ण 1986-87 में होगा । मैं जानना चाहता हूं कि वास्तव में यह पूर्ण कब तक होगा और इसकी कास्ट कितनी हो जायेगी और प्राइमरी कास्ट क्या थी ?

श्री शिवराज पाटिल : मैंने बताया कि डिले का पहला कारण यह है कि जमीन आसानी से नहीं मिल सकी । दूसरा कारण यह है कि वहां की नहर से जो पानी मिलने वाला था वह पानी नहीं मिल सका । वहां पानी जमा करने के लिए जो प्लांट को ठंडा करने के लिए दूसरे प्रकार के कूलर बनाने पड़े । तीसरी बात यह है कि हमारा

जो स्टीम जैनरेटर है उसको हम अलग तरीके से बना रहे हैं इसलिए इसकी टैक्नोलोजी थोड़ी अलग हो गई है । यह जो कंटेन्डरिंग और एंडशील्ड है हम ऐसी बनाना चाहते हैं कि उसमें थोड़ा सा भी रेडिएशन बाहर न आ सके और उसको हम अच्छे ढंग से कर सकें । जो हमें अनुभव मिला है उस आधार पर इसकी टैक्नोलोजी हमने बनाने की कोशिश की है और इसको बहुत सारी टैक्नोलोजी अपने ही देश में बनी है । थोड़ी सी टेक्नोलोजी जर्मनी से और देश से लाये थे लेकिन बाद की सारी टेक्नोलोजी हमने यहां पर बनाई है । न्यूक्लियर टेक्नोलोजी का जो सवाल है यह बाहर से आसानी से नहीं मिलती है इसलिए हम यहां पर बना रहे हैं और पुराने अनुभव पर हम इसमें सुधार करते जा रहे हैं । इसी कारण इसके अन्दर थोड़ी सी देर लग रही है । यह कि 1974 में यह शुरू हो गया था और आज तक पूरा नहीं हुआ, कंस्ट्रक्शन की इतनी कास्ट बढ़ी है, डिजाइन की वजह से और दूसरी चीजों की वजह से कास्ट बढ़ी है ।

श्री वीरेन्द्र वर्मा : मैंने जो पूछा था कि कितनी कास्ट हो जायेगी, यह कब तक पूरा हो जायेगा, यह इन्होंने नहीं बताया ।

MR. CHAIRMAN: You asked the reasons for the delay. He has given the reasons.

SHRI JAGESH DESAI: We are happy that atomic power plants are being set up in this country and also equipment is being manufactured in our public sector. I would like to know from the hon. Minister what the project cost of a 500 MW atomic plant and a thermal plant is and what is the cost of production per unit in a thermal plant and an automic plant?

MR. CHAIRMAN. This is about Narora. Mr. Gurupadaswamy.

SHRI JAGESH DESAI: Sir, this is an important question.

MR. CHAIRMAN. This may be important, but this Minister can not reply. Another Minister will reply to that question. He cannot give the answer. The Energy Minister must answer that question.

SHRI M. S. GURUPADASWAMY: Sir, this question relates to Norora plants. My supplementary will be bordering on that, if not wholly relevant. If you permit me Sir,....

MR. CHAIRMAN: All right. I will judge it.

SHRI M. S. GURUPADASWAMY: Sir, the history of atomic plants in this country has been a history of delay and long delay. The reasons may be justifiable or non-justifiable. But the fact remains that there have been inordinate delays caused in establishing these plants in the past and even now, which results and has resulted in tremendous cost escalation which will have a impact on the cost of generation of energy. May I know the reasons for such delays? Whether it is not a fact that one of the reasons for such inordinate delays in the establishment of these plants, both at Rana Pratap Sagar and at Kalpakkam, is lack of coordination between various official agencies in this country to see that the machhinery, equipment, design expertise and other things are supplied in time. Till today, I am sorry to find, there is no coordination at all between different agencies causing lot of delay, lot of escalation in cost, lot of rise in atomic energy price.

SHRI SHIVRAJ PATIL: Sir, nuclear technologies are closely held technologies and not easily available from abroad. After the first unit at Kota, we are depending entirely upon

ourselves and developing those technologies takes time and reseash and development is a journey into the unknown. (*Interruption*). I am coming to that. We have to develop our own technology. Secondly, Sir, even if we have the technology, the industrial capability to turn that technology into instrumen's should be available. The question is whether we were having the industrial capabilities for fabricating the equipments. That is the que tion. And the third is, if some improvement can be effected into the equipment which we had made, should we make those improvements or not? And fou thly, if the coal is not going to be available for ever, if the oil is not going to be available for ever, should this country develop the technology which will help us in the future? In the future, may be after 50 or 60 years, when we have the fast breeder reactor at commercial level, after that if we have fusion technology which may flow out of our studies in this area later on, should we develop it or not? If we have to calcu'ate the cost, we cannot calculate the cost of producing the energy at the first instance itself. We shall have to take into account the period for which the energy is to be supplied and if the energy is not available later on because coal is not available, because oil is not available, what happens to this country? So today's Government, the Congress Government, the visionary Pt. Jawaharlal Nehru and Dr. Bhabha, looked into into the future and then decided what was going to happen and they calculated the cost for providing the energy for all these years to come and not in the first instance itself.

MR. CHAIRMAN: Mr. Minister, you have missed the thrust of the question. The question is, is it due to any lack of coordination between different agencies?

SHRI SHIVRAJ PATIL: Sir, we are producing these equipments in the public sector industry and private sector industry and to the extent it has been possible, we have been able to produce the coordination also. But these things were not done by the industry before. They had to get the equipment, the tools also; they had to establish the capability in their industry also for producing the equipments. These are the reasons and non-cooperation between the laboratory and the industry. (*Interruptions*)...

SHRI RAJIV GANDHI: Sir, I just wanted to add this: As I understood the thrust of the question, it was whether all this had led to an increase in the cost of nuclear energy. The answer is no.

DR. (SHRIMATI) NAJMA HEPTULLA: Sir, actually a lot has been talked about it and Mr. Suresh Kalmadi very heatedly touched the seriousness of nuclear energy generation. It is not only for Narora but any other nuclear plant. In view of what is happening all over the world in the advanced countries where nuclear mishaps are taking place, it is hazardous to human beings and health of the people. I would like to ask the honourable Minister whether adequate precautions have been taken while developing indigenous technology.

AN HONOURABLE MEMBER:: He has already answered that.

DR. (SHRIMATI) NAJMA HEPTULLA: No, he hasn't answered. If he has answered I would have known it... (*Interruptions*).

MR. CHAIRMAN: The simple rule in the House is, you should not reply to interruptions.

DR. (SHRIMATI) NAJMA HEPTULLA: Sir, I am thinking I am still sitting in the Chair and stopping interruptions.

Sir, even in an ordinary industry like in Bhopal what happened there caused a serious mishap. We are going ahead with our nuclear power generation and I congratulate our scientists for having this indigenous

research. But I would like to ask the honourable Minister whether any precuationary measures have been taken in view of the recent happenings in the world.

SHRI SHIVRAJ PATIL: Sir, the designs which we have accepted in India are the designs which are internationally accepted. One of the most important things, which the power plants, which we have in India, have, is the double containment. There is a building within a building and then within that building there are metallic containers and within them also there are other metallic containers. Now there are four layers through which radiation has to come out. For the benefit of this august House I would just read out two or three lines from a report given in *Living with Atomic Radiation* published by the International Radiological protection Board of U.K. and not of India;

Radiation risk compared to risks in other activities.

Cause	Chance of death year
Smoking 20 cigarettes/day	1 in 200
Accidents in deep sea fishing	1 in 400
Natural causes, 40 years old	1 in 500
Accidents on the road	1 in 5,000
Accidents in the home	1 in 10,000
Accidents at work	1 in 20,000
Radiation work (0.5 rem/year)	1 in 20,000

...(*Interruptions*)...

SHRI NIRMAL CHATTERJEE: Sir, my expertise in this matter is near-negative and, perhaps, less than that of the Prime Minister....(*Interruptions*)... It is nearly non-negative, for your consumption.

MR. CHAIRMAN: I told you, you should not reply to interruptions.

SHRI NIRMAL CHATTERJEE: But, Sir, on other occasions you have also told us that this is sauce for our deliberations.

My question is, despite that, I have read the speeches of Dr. Raja Ramanna as well as some articles from a very strong school of opinion which believes that the disposal of waste as well as the safety measures are not adequate. There is a very strong school of scientific opinion. As I said, my expertise is very near negative. My question is, because of these contending schools not only in India but worldwide, world the Government consider it wise to have inspections by that school also which feels that no adequate measures have as yet been developed which can be characterized as 100 per cent safe?

SHRI SHIVRAJ PATIL: Sir, let us realise that inspite of the fact that there have been 4,000 reactor years in the world, excepting the recent happenings there has been no mishap, no life has been lost because of radiation caused in the accidents in the world. (*Interruptions*)

SHRI NIRMAL CHATTERJEE: There have been accidents all over the world.

SHRI SHIVRAJ PATIL: In chemical industries and other industries accidents have happened and lives are lost, but not in atomic reactors. Sir, in India we have created an organisation which is independent of the organisation...

SHRI NIRMAL CHATTERJEE: He should know more than I do. Therefore he should be in a position to give correct figures. There have been accidents.

SHRI SHIVRAJ PATIL: Sir, I am making a statement on the floor of the House. If you show me, I will accept it.

SHRI NIRMAL CHATTERJEE: How I can show you. I do not know.

SHRI SHIVRAJ PATIL: You cannot go on interrupting like this.

SHRI NIRMAL CHATTERJEE: I cannot show you. You have to see. If you do not see, how can I show you?

SHRI SHIVRAJ PATIL: Am I expected to answer to his interruptions?

MR. CHAIRMAN: I told you. You are supposed to ignore completely all the interruptions. Mr. Chatterjee, you say there is, and he says there is none. How can you reconcile this?

SHRI SHIVRAJ PATIL: The point I am making, and the hon. Member would like to hear it, I suppose, is that in our set-up we have one organisation for putting up, for maintaining and running the atomic power stations. There is a separate organisation which is not working under the first organisation, and that separate organisation is responsible for inspecting and finding out whether there is radiation in the plant, around the plant. All these factors are taken into account by that separate independent organisation under the Atomic Energy Commission. This kind of arrangement is made to see that those who run the plant do not give information on radiation activity inside and outside the plant, which is not in consonance with the reality. These are two independent entities created for this purpose, to see that the first organisation does not give an information which may not really be in consonance with the reality over there. There is already separation between these two organisations. If somebody writes a report, and if anybody who is writing a report, is allowed to go to the atomic power plants and make examination the question is whether they will have equipments necessary, whether they will have the information necessary whether they will have the capabilities for finding out whether really there is radiation or not. So, by simply writing articles, they do not get a right or they do not acquire the capabilities for finding out whether there is radiation or not. Scientifically these institutions have been created. They have scientific equipments. And I have been saying that there have been accidents in other plants but not in atomic power plants.

Sir, I want to correct that there have been no deaths caused due to radiation accidents in India.

MR. CHAIRMAN: Question No. 224.

Construction of an air base by Pakistan in Pak-occupied Kashmir

*224. SHRI SYED AHMAD HASHMI: Will the Minister of EXTERNAL AFFAIRS be pleased to state:

(a) whether Government's attention has been drawn to a news item which appeared in the The Times of India of 7th March, 1986 to the effect that Pakistan has constructed an air base in the Pak-occupied Kashmir;

(b) if so, what are the details thereof; and

(c) whether any protest has been londged with the Pakistan Government?

THE MINISTER OF EXTERNAL AFFAIRS (SHRI B. R. BHAGAT): (a) Yes, Sir.

(b) Pakistan is reported to be constructing airfields at Rawalkot and Muzaffarabad in Pak-Occupied Kashmir.

(c) A strong protest has been lodged with the Pakistan Govt. and our views conveyed to them in no uncertain terms.

श्री सैयद अहमद हाशमी : सर, अभी जैसा कि आनरेबल मिनिस्टर ने बतलाया कि यह एक वाकया है कि पाकिस्तान अकुपाइड काश्मीर में इस तरह की हरकतें हो रही हैं जिससे